

1  
2

3

[illegible]

a pulse generator connected to said micropipeline and operable to produce pulse signals responsive to both rising and falling edges of said data transfer control signals.

1        2.    The circuit of claim 1, further comprising a level-  
2        sensitive latch for holding and propagating data through  
3        said micropipeline.

1        3.    The circuit of claim 2, wherein said pulse generator  
2        is a dual-pulse generator that delivers a data transfer  
3        pulse to said level-sensitive latch in response to both  
4        said rising edge and said falling edge of said data  
5        transfer control signals.

1        4.    The circuit of claim 1, wherein said control element  
2        is a Muller C-element.

1        5.    The circuit of claim 1, wherein said pulse generator  
2        comprises:

3               a logic gate having a first input and a second  
4        input, wherein said first input is connected to the  
5        output of said control element; and

6               a delay element connected between the output of said  
7        control element and said second input, wherein a pulse is  
8        produced at the output of said logic gate in accordance  
9        with the delay imparted on said data transfer control  
10       signal by said delay element.

1        6.    The circuit of claim 5, wherein said logic gate is a  
2        XOR gate.

1        7.    The circuit of claim 5, wherein said delay element  
2        comprises an even number of inverters.

1        8.    A micropipeline comprising:

2            a plurality of C-elements for providing sequential  
3            data transfer control among a plurality of data  
4            processing stages within said micropipeline;

5            a plurality of latches for holding and propagating  
6            data through said plurality of processing stages; and

            a plurality of dual-pulse generators for translating  
            signal transitions from the outputs of said C-elements  
            into latch control pulses for said plurality of latches.

004727 121400

1        9.    A method for implementing a two-phase data transfer  
2        protocol between stages in a micropipeline, said method  
3        comprising:

4                generating a data transfer control signal for  
5        transferring data to a next micropipeline stage; and

6                converting both a rising edge and a falling edge of  
      said data transfer control signal into a pulse signal  
      such that said micropipeline transfers data during both  
      said rising edge and said falling edge.

004227 40925280  
00737637 121400

1 10. The method of claim 9, further comprising holding  
2 and propagating data through said micropipeline utilizing  
3 a level-sensitive latch.

1 11. The method of claim 10, wherein said micropipeline  
2 includes a Muller C-element for generating said data  
3 transfer control signal, and wherein said converting a  
4 rising edge and a falling edge of said data transfer  
control signal into pulse signals is performed utilizing  
a dual pulse generator, said method further comprising:

applying said data transfer control signal from said  
Muller C-element to the input of said dual pulse  
generator; and

delivering said data transfer pulses from said dual  
pulse generator to said level-sensitive latch in response  
to a rising edge and a falling edge of said data transfer  
control signal.